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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,422	09/18/2003	Hirokazu Takenaka	2271/71084	7448

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EXAMINER	
MOTSINGER, SEAN T	
ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/666,422	TAKENAKA ET AL.	
	Examiner	Art Unit	
	Sean Motsinger	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/30/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) *1-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/16/2005,9/18/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Election/Restriction

1. Claim 1-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on March 20, 2003. This restriction has been made final. Claims 23-45 have been presented for prosecution.

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Objections to the Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The following title is suggested: "Color Conversion by Dividing the Color Space with Lines."

Rejections Under 35 U.S.C. 112 First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 39-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

6. Re claim 39 it is unclear how a color martial signal of black can be allocated on a line for the purpose of determining a maximum amount of black for a black signal. Its not clear how allocating color material signals of black along the line determines the maximum amount of black and this is not described in the specification. The term "black signal" is not specifically defined in the specification it is only mentioned in a repetition of the claim language, it is not known what applicant means by "black signal" or if it is the same as a "signal of black".

7. Re claim 40, it is not described in the specification how a color martial signal of black can be allocated for the purpose of determining a maximum amount of black. Its not clear how allocating color material signals of black along the line determines the maximum amount of black and this is not described in the specification. In fact it is not exactly clear what applicant means by allocated and determined (see page 54 of specification) or if applicant intends they mean the same thing.

Rejections Under 35 U.S.C. 112 Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 39-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Re calim 39, it is unclear how a color martial signal of black can be allocated for the purpose of determining a maximum amount of black. Its not clear how allocating color material signals of black along the line determines the maximum amount of black and this is not described in the specification. In fact it is not exactly clear what applicant means by allocated and determined (see page 54 of specification) or if applicant intends they mean the same thing. The term "black signal" is not clearly

defined in the claim and it is not known what applicant means by "black signal" or if it is the same as a signal of black. For the purposes of examination examiner is interpreting claim 39 to read: "wherein the one or more color material signals of black are allocated on the one or more third lines to allow determination of an amount of black for a input signal situated between the first line and the one or more third lines." See page 49 or the specification

10. Re claim 40, it is unclear how a color martial signal of black can be allocated for the purpose of determining a maximum amount of black. Its not clear how allocating color material signals of black along the line determines the maximum amount of black and this is not described in the specification. In fact it is not exactly clear what applicant means by allocated and determined (see page 54 of specification) or if applicant intends they mean the same thing. For the purposes of examination examiner is interpreting claim 40 to read: "wherein the one or more color material signals of black are allocated on the one or more second lines to obtain a maximum range for the reproducible color range." (see page 48 of the specification)

Rejections Under 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 23-27, 30-33, 36-40, 44, 45 rejected under 35 U.S.C. 102(b) as being anticipated by Ohta et al US 6,307,644.

12. Re claim 23 Ohta discloses converting a color signal, being input to an image output apparatus, into a color material signal, the image processing method comprising the steps of: defining a first line (see column 3 lines 35 to 46 and figure 6 and 7 note a line is defined between each vertex on the top surface of figure 6 this includes a first line from white to black); defining one or more second lines (see column 3 lines 35 to 46 note the second lines are lines defined from black to the edges of the hexagon in figure 6); allocating one or more color material signals(signals corresponding to ink see column 8 line 26) on the first, and second lines (column 3 lines 45-48 note the output on the lattice points of the lines are known and used to find values in the middle); and obtaining a color material signal (signal corresponding to ink) situated between the first and second lines by interpolation (column 3 line 46) according to the first and second lines (column 3 lines 45-48 note the output on the lattice points of the lines are known and used interpolate to find values in the middle).

13. Re claim 24 Ohta discloses wherein the first line is an achromatic line (line from black to white see figure 7 and rejection for claim 23), in a reproducible color range

of the image output apparatus(column 8 lines 25-30 note the vertexes have defined outputs so they are within the reproducible color range), wherein except for the achromatic line, the one or more second lines are one or more lines situated within the reproducible color range (realize color reproducibility column 8 line 33-34) of the image output apparatus.

14. Re claim 25 Ohta discloses wherein the first line is a line extending between white and black (line from black to white see figure 7 and rejection for claim 23), wherein the one or more second lines are one or more lines connecting black with one or more points situated between white and a primary color or a secondary color(see figure 6 note the lines extend between black and primary or secondary colors).

15. Re claim 26 Ohta discloses wherein the one or more color material signals allocated on the first and second lines are one or more signals of same color having different density. (figure 7 and column 7 line 24 note the lines are described as "brightness components" which means color does not vary (i.e. the are the same color) and only density (brightness/amount of ink pigment column 8 lines 25-35) varies).

16. Re calim 27 Ohta discloses wherein the one or more color material signals allocated on the first and second lines are one or more signals of black (column 8 line 27).

17. Re claim 30 Ohta further discloses a step of creating a table (LUT column 8 lines 25-30) indicative of the obtained color material signal (output) corresponding to the input color signal.

18. Re claim 31 Ohta further discloses a CPU, wherein the CPU (column 8 line 53)converts an input color signal into a color material signal by referring to the table (LUT column line 56) as set forth in claim 30

19. Re claim 32 Ohta discloses An image processing method for converting a color signal, being input to an image output apparatus, into a color material signal, the image processing method comprising the steps of: defining a first line (see column 3 lines 35 to 46 and figure 6 and 7 note a line is defined between each vertex on the top surface of figure 6 this includes a first line from white to black); defining one or more second lines (see column 3 lines 35 to 46 note the second lines are lines defined from black to the edges of the hexdegon in figure 6); defining one or more third lines (see column 3 lines 35 to 46 and figures 6 and 7 note these lines are the lines connecting points, in-between the border of the hexagon and the white points,

to black at the bottom of the space; allocating one or more color material signals (signals corresponding to ink see column 8 line 26) on the first, second, and third lines (column 3 lines 45-48 note the output on the lattice points of the lines are known and used to find values in the middle); and obtaining a color material signal (signal corresponding to ink) situated between any of the first, second, and third lines by interpolation(column 3 line 46) according to the first, second, and third lines (column 3 lines 45-48 note the output on the lattice points of the lines are known and used interpolate to find values in the middle).

20. Re claim 33 Ohta further discloses wherein the first line is an achromatic line (line from black to white see figure 7) in a reproducible color range of the image output apparatus (column 8 lines 25-30 note the vertexes have defined outputs so they are within the reproducible color range), wherein the one or more second lines are one or more lines situated on an outermost boundary (see figure 6 note that the second lines as indicated in the rejection for claim 33 exist on the outermost boundary) line of the reproducible color range, wherein except for the achromatic line, the one or more third lines are one or more lines situated within the reproducible color range of the image output apparatus(column 8 lines 25-30 note the vertexes have defined outputs so they are within the reproducible color range).

21. Re claim 36 Ohta further discloses wherein the first line is a line extending between white and black (see figure 7), wherein the one or more second lines are

one or more lines extending between black and a primary color and/or a secondary colors (see figure 6 note the lines extend between black and primary or secondary colors) wherein the one or more third lines are one or more lines connecting black with one or more points situated between white and a primary color or a secondary color (see figure 7 note the third lines as indicated in the rejection of claim 33 are between white and the primary and secondary colors).

22. Re calim 37, Ohta further discloses wherein the one or more color material signals allocated on the first, second, and third lines are one or more signals of same color having different density (figure 7 and column 7 line 24 note the lines are described as "brightness components" which means color does not vary (i.e. the are the same color) and only density (brightness/amount of ink pigment column 8 lines 25-35) varies).

23. Re claim 38 Ohta further discloses wherein the one or more color material signals (channels column 8 line 25) allocated on the first, second, and third lines are one or more signals of black (column 8 line 27).

24. Re claim 39 Ohta further discloses wherein the one or more color material signals of black are allocated on the one or more third lines (column 8 lines 25-35 note color material signals are defined along the line by defining at vertexes) to allow determination of an amount of black for a input signal situated between the first

line and the one or more third lines (note this limitation is not positively recited however that the amount of black can be found between the between the lines via interpolation column 7 lines 5-10.

25. Re claim 40 Ohta further discloses wherein the one or more color material signals of black are allocated on the one or more second lines (column 8 lines 25-35 note color material signals are defined along the line by defining at vertexes) to obtain a maximum range for the reproducible color range (note this element is intended use not positively recited in the claim, however from column 8 line 33 it is clear the maximum reproducibility is intended).

26. Re calim 44 Ohta further discloses further comprising a step of creating a table (LUT column 8 lines 25-30) indicative of the obtained color material signal (output) corresponding to the input color signal .

27. Re claim 45 Ohta further discloses a CPU, wherein the CPU (column 8 line 53)converts an input color signal into a color material signal by referring to the table (LUT column line 56) as set forth in claim 44.

Rejections 35 U.S.C. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

28. Claims 28, 29 41, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta in view of Saito et al US 2002/0021458.

29. Re claim 28 Ohta does not disclose wherein the one or more color-material signals of black are allocated to be black starting points at which graininess is unnoticeable. Saito discloses, wherein the one or more color-material signals of black are allocated to be black starting points (BG quantity paragraph 59) at which graininess is unnoticeable (paragraph 59, note graininess is suppressed). The motivation to combine is to reduce graininess. Therefore it would have been obvious to combine Ohta with Saito to reach the aforementioned advantage.

30. Re claim 29 Saito further discloses wherein color material signals are allocated according to a user (see paragraph 77 note ink dying points can be instructed by the user.)

31. Re claim 41 Ohta does not disclose wherein the one or more color-material signals of black are allocated to be black starting points at which graininess is unnoticeable. Saito discloses, wherein the one or more color-material signals of black are allocated to be black starting points (BG quantity paragraph 59) at which graininess is unnoticeable (paragraph 59, note graininess is suppressed). The motivation to combine is to reduce graininess. Therefore it would have been obvious to combine Ohta with Saito to reach the aforementioned advantage.

32. Re claim 42 Saito further discloses wherein color material signals are allocated according to a user (see paragraph 77 note ink dying points can be instructed by the user.)

33. Claims 34 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta in view of Murakami et al US 5,930,388.

34. Re claim 34 Ohta discloses all of the elements of claim 32 and wherein the first line is a line extending between white and black(see column 3 lines 35 to 46 and figure 6 and 7 note a line is defined between each vertex on the top surface of figure 6 this includes a first line from white to black), wherein the one or more second lines are one or more lines extending between black and a primary color and/or a secondary color(see figure 6 note the lines extend between black and primary or secondary colors), Ohta does not disclose wherein the one or more third lines are

one or more lines passing through a color range for memory color. Murakami discloses wherein further dividing (column 4 line 64) a color range for memory color (flesh tones column 4 line 62). The motivation is to "reduce the occurrence of errors when color correcting color requiring highly accurate color correction" (column 2 lines 15-16). Therefore it would be obvious to combine Murakami and Ohta to add in more "third lines" further dividing the memory color regions to reach the aforementioned advantage.

35. Re claim 43 Ohta discloses all of the elements of claim 43 Ohta does not disclose wherein the one or more third lines are controlled according to a characteristic of an input image. Murakami discloses further dividing (column 4 line 64) a color range according to a characteristic of an input image (required output accuracy column 12 line 29). The motivation is to "reduce the occurrence of errors when color correcting color requiring highly accurate color correction" (column 2 lines 15-16). Therefore it would be obvious to combine Murakami and Ohta to add in more "third lines" according to accuracy required to reach the aforementioned advantage.

36. Claims 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta in view of Murakami et al US 5,930,388 in further view of Asada US 5,180,008.

37. Re claim 35 Murakami further discloses wherein the memory color includes human skin color,(flesh tone column 12 line 27) sky blue color (column 12 line 27), Murakami does not disclose ocean blue color and plant green color. However these well known memory colors are disclosed in Asada ocean blue color (sea column 1 lines 26-27) and (plant green color column 1 lines 26-27) The motivation to combine is in Murakami to"reduce the occurrence of errors when color correcting color requiring highly accurate color correction" (column 2 lines 15-16).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Motsinger whose telephone number is 571-270-1237. The examiner can normally be reached on 9-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571)272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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4/12/2007

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